

## Claims

1. A device for rebound testing of an object, comprising:  
a substrate;  
a sensor coupled to the substrate for emitting a signal upon sensing impact of the object against the substrate; and  
a controller for receiving signals from the sensor, said controller being configured to measure a first time period between a first signal from the sensor and a second signal from the sensor and to measure a second time period between the second signal from the sensor and a third signal from the sensor.
2. The device of claim 1, wherein:  
said controller is further configured to calculate a rebound value based on the first time period and the second time period.
3. The device of claim 2, wherein:  
said controller is further configured to calculate the rebound value by calculating a ratio of the square of the first time period to the square of the second time period.
4. The device of claim 3, wherein:  
said calculating the rebound value further comprises adding an offset constant to compensate for the mass of the substrate to the ratio of the square of the first time period to the square of the second time period.
5. The device of claim 2, further comprising:  
a display coupled to the controller for displaying the rebound value.
6. The device of claim 1, wherein said controller comprises:  
a clock source;

a counter driven by the clock source; and  
a microcontroller configured such that:  
    upon receipt of the first signal, the microcontroller resets the counter;  
    upon receipt of the second signal, the microcontroller stores a first value of  
the counter as the first time period and resets the counter; and  
    upon receipt of the third signal, the microcontroller stores a second value  
of the counter as the second time period.

7. The device of claim 1, wherein:  
said sensor comprises a piezoelectric transducer coupled to a bottom surface of the  
substrate.

8. A method of testing rebound qualities of an object, comprising:  
issuing a first signal in response to a first impact of the object onto a substrate;  
issuing a second signal in response to a second impact of the object onto the  
substrate;  
measuring a first time period between the first signal and the second signal;  
issuing a third signal in response to a third impact of the object onto the substrate;  
measuring a second time period between the second signal and the third signal.

9. The method of claim 8, further comprising:  
dropping the object onto a substrate to cause the first impact of the object onto the  
substrate.

10. The method of claim 8, wherein:  
said issuing the first signal comprises issuing the first signal from a piezoelectric  
transducer coupled to a bottom surface of the substrate in response to the first impact of  
the object onto the substrate; and

said issuing the second signal comprises issuing the second signal from the piezoelectric transducer coupled to the bottom surface of the substrate in response to the second impact of the object onto the substrate.

11. The method of claim 8, further comprising:  
calculating a rebound value based on the first time period and the second time period.

12. The method of claim 11, wherein:  
said calculating the rebound value comprises calculating a ratio of the square of the first time period to the square of the second time period.

13. The method of claim 12, wherein:  
said calculating the rebound value further comprises adding an offset constant to compensate for the mass of the substrate to the ratio of the square of the first time period to the square of the second time period.

14. The method of claim 11, further comprising:  
displaying the rebound value.

15. The method of claim 11, wherein said measuring the first time period between the first signal and the second signal comprises:  
upon receipt of the first signal, resetting a counter driven by a clock source; and  
upon receipt of the second signal, storing a first value of the counter as the first time period.

16. The method of claim 15, wherein said measuring the second time period between the second signal and the third signal comprises:  
upon receipt of the second signal, resetting the counter; and

upon receipt of the third signal, storing a second value of the counter as the second time period.

17. The method of claim 16, wherein said measuring the first time period between the first signal and the second signal comprises:

upon receipt of the first signal, disregarding additional signals for a predetermined time period.

18. The method of claim 16, further comprising:

aborting the testing process if an elapsed time between the first signal and the second signal or between the second signal and the third signal exceeds a predetermined threshold time.

19. The method of claim 18, wherein said predetermined threshold time comprises one second.

20. The method of claim 8, wherein said object is a golf ball.